Developing careers advice for undergraduates

Life after biochemistry

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As I gathered up my laser pointer, board pens and notes after a lecture with first years, it was clear that the student loitering by the door was hoping for a private chat. After everyone else had drifted away, she came back into the room. “Sir”, she began nervously, “I was wondering, what jobs can you actually do after a degree in biochemistry?”

The timing was unusual – it is not normally three weeks into a course that this thought crosses a student’s mind – but it is nevertheless a crucial question which everyone studying biochemistry needs to consider at some stage. Unlike more vocational disciplines such as pharmacy or medicine, the career path following a degree in one of the biological sciences is less clearly defined. For this reason, students of bioscience need more assistance with careers awareness.

The importance of employability for the contemporary university

Careers education and employability are increasingly high on the agenda of universities. As a consequence of the global economic crisis, the current cohort of graduates is facing the trickiest job market for a generation1. They therefore need the help of their alma mater in order to try to position themselves to be as competitive as possible. This help includes both broadening their horizons about potential careers and equipping them with the skills they need to secure employment.

Of course, it would be naive to see care for our students as the only motivation for institutions taking a closer look at employability. In the UK, there has been a requirement since August 2010 for universities to include a statement about graduate employability in their online ‘unistat’ information, and from September 2012, the mandatory ‘Key Information Set’ made available to all potential applicants must include employment and salary data for each undergraduate course.

Careers After Biological Sciences

What can we do to raise student awareness of the diversity of careers that can follow from a biochemistry degree? Since 2007, the University of Leicester have been running the Careers After Biological Sciences programme, affectionately known as CABS. As the name implies, the remit of CABS has been rather wider than exclusively helping biochemists. However, many of the careers that have been discussed are equally applicable to any bioscientist and, since I co-ordinate the scheme, biochemistry and medical biochemistry graduates have always been disproportionately over-represented amongst the speakers.

Over the last six years, we have learnt a number of valuable lessons about the organization of careers seminars, lessons that may be of benefit to colleagues considering the establishment of a similar scheme. Emerging issues include:

1. Careers to consider
2. Organization of events
3. Making materials available to a broader audience

1. Careers to consider

If you sit down with a group of typical biochemistry undergraduates and ask them about their career intentions, a relatively small list of jobs will predominate. Few students look naturally beyond the three aims of going into medicine, going into teaching and going into research (and they are likely to be vague about what the latter means in practice). Although it is important not to dismiss these ambitions, as we will note when discussing the organization of events, it is nevertheless vital that any careers education programme for biochemists should aim to expand the students’ horizons.

Include ‘Careers from Science’ alongside ‘Careers in Science’

We might wish for all of our students to move on to PhDs and thereafter to conducting Nobel Prize-winning research. The reality, however, is that many graduates will go on to work in areas only loosely linked, or entirely unrelated, to the content of their degrees, but for which scientific training provides a valuable platform. These have been

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Abbreviations: CABS, Careers After Biological Sciences.
Features

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Education and Careers

characterized as ‘Careers from Science’ alongside the more typical ‘Careers in Science’. From the outset of the CABS programme, we have therefore included a diversity of roles into which a qualification in biochemistry might lead (see illustration above).

2. Organization of events

An annual series of careers talks sits at the core of the CABS programme. In our case, each of the invited speakers is either a graduate from one of our own degrees, or is a significant local gatekeeper (e.g. admissions tutor for medicine, or postgraduate dean). Although restricting invitations to our own alumni might theoretically limit the careers that can be covered, the fact that they have ‘got there from here’ heightens the connection to current students. A similar programme need not include this constraint.

Each of the graduates is asked to speak for 20–25 minutes and to include three core pieces of information, in whatever order they see fit. They are asked to describe what their present job involves, how they ended up in that role after their time at Leicester (i.e. some personal history), and any top tips they have from their current vantage point for anyone considering a move into the same field.

Five by two, or two by five?
The organization of these talks has evolved from an initial series of four or five one-hour ‘twilight’ sessions with two speakers, into two Wednesday afternoon sessions, each with five speakers. As noted above, one of the principal goals of the CABS scheme has been to expand students’ awareness of careers beyond the ‘big three’ of medicine, teaching and research. Experience shows, however, that a session featuring at least one of these ‘obvious’ professions is likely to draw a larger audience. Having more talks on any one day therefore allows you to ‘seed’ the event with one of these popular careers and to build around it a variety of other roles which you feel are important, but of lower intuitive interest to the students.

An alternative way to increase attendance would, of course, be to make all sessions compulsory. At present, however, we have continued to operate with the careers talks as a voluntary, extra-curricular, activity.

3. Making materials available to a broader audience

Perhaps the most innovative aspect of the CABS programme has been the use of social media to produce a growing library of career-related resources. It would have been possible to develop these materials within the University’s virtual learning environment. To do so, however, would have locked them away within an institutional silo, only accessible by current undergraduates. We wanted the resources to be available to a wider audience, including our own graduates from earlier years, but also to students at other institutions who might be interested in the careers discussed.

We have therefore employed a number of freely available online tools to produce an open-access website through which a variety of materials can be reached. Facebook and LinkedIn are used to contact potential speakers, a Wordpress blog is used as the central hub for the resources, which include slides (and audio) hosted by Slideshare, and videos which are either on YouTube or Vimeo. Finally Twitter and Google+ are used to advertise the resources to the community at large.

Recruitment of speakers

An assortment of methods is used to identify prospective speakers. Some are personal tutees or other former students with whom I have kept in touch directly. Some are recommendations from colleagues. Others are brought to our attention fortuitously, including one who noted that he was a Leicester graduate in the biography he wrote at the end of an article in The Biochemist! Increasingly, however, we are contacting former students using services such as LinkedIn and Facebook.
LinkedIn is a business-oriented networking tool, but most users include their educational history. Facebook is obviously the archetypal social network. Although privacy settings have been tightened over time, it remains possible to re-contact graduates by conducting a generic search, or by looking through the ‘friends’ lists of former students with whom you are already in touch.

There are certain limitations to the use of Facebook in this way. For example, it can be an effective strategy for tracking down students with unusual names, but is less successful in uniquely identifying students with common names. Similarly, female students may have changed surname when they married. Although students are generally pleased to be contacted, there is a slight whiff of ‘stalking’ with this approach. Over the last year or so we have therefore moved to a more relational model with the establishment of a School of Biological Sciences alumni group. Only our former students are eligible for membership and the group serves as a vehicle for keeping them informed about things that are happening back at the University. This might range from relaying formal press releases involving members of staff from the department, through to updates about births, deaths, marriages, promotions and retirements that would not usually be covered in institutional bulletins. Over time, it is hoped that this ongoing contact will generate more careers speakers. At present, the group has over 240 members.

Online resources

Our central hub for the careers resources is biosciencecareers.wordpress.com. Alongside Blogger, Wordpress is one of the two most popular blogging platforms. It allows for easy integration of text, images and other media, without the need to know any coding languages whatsoever. As well as the careers resources themselves, we also have another page giving details of sources of funding for vacation studentships and other intern programmes.

The cornerstone of our careers descriptions are the PowerPoint slides used in the talks. Copies of the presentations are housed on www.slideshare.net, but can be embedded so that they display within the biosciencecareers.wordpress.com site itself. The free account on Slideshare now allows for the upload of mp3 audio files which can be combined with the slides to make slidecasts or webinars.

At different times, we have also dabbled with the addition of videos. In the YouTube era, it seems very straightforward to think about adding moving images to the collection of resources. The reality is slightly more complex. Regular YouTube accounts have a maximum duration of 15 minutes, insufficient for a full talk. The production of adequate quality video also involves more than simply pointing a camera in the right direction and pressing record. You are likely to need a certain amount of editing, which can be expensive if carried out by a third party or time-consuming if you do it yourself.

If you do decide to go down the videoed talks route, then vimeo.com is a useful alternative to YouTube. The basic video account includes the capacity to upload 500 Mb of data per week, sufficient to include at least one high-definition video of 30 minutes duration.

As an alternative, you might like to consider making bespoke videos of graduates in their place of work. We have produced three such videos featuring alumni, all of whom had already visited to give talks. These shorter videos can be freely uploaded to YouTube, but if you take this route, you are likely to require a budget for both initial production and for editing.

Advertising the resources

Having gone to the trouble of recruiting speakers, organizing the careers events and collating the resources online, you want to maximize the number of people who will benefit from your labours. In addition to advertising resources locally via email, a broader audience can be made aware of the materials by notifications on Twitter and on Google+.

Back to the future?

So, what of the student who stayed behind at the end of the lecture to ask about careers that could follow a degree in biochemistry? The incident actually happened during the current academic year, so it will be some time before we will know her chosen vocation. In the meantime, however, I was able to point her to the examples on the biosciencecareers.wordpress.com site and reassure her that she was not condemned to becoming a medic!

References


Chris Willmott is a Senior Lecturer in the Department of Biochemistry at the University of Leicester. In addition to careers education, Chris has particular interests in bioethics and in antibiotic resistance (the subject of his PhD thesis, conducted under the supervision of Tony Maxwell). An enthusiast for social media, Chris maintains three blogs: biosciencecareers.wordpress.com (as described in the article), bioethicsbytes.wordpress.com (focused on the use of multimedia in teaching bioethics), and lefthandedbiochemist.wordpress.com (about broader aspects of pedagogy). He is on the education committee for the Nuffield Council on Bioethics and is a Trustee of both the British Universities Film and Video Council and of Christians in Science. email: cjrw2@leicester.ac.uk

Biochemical Society activities to support undergraduates:

- the Next Steps: options after a bioscience degree careers guide for undergraduates, created with other bioscience learned societies. All undergraduate members receive this booklet.
- free online careers advice at www.biochemistry.org/careers
- co-organizers of the Life Sciences Careers Conference for undergraduates www.societyofbiology.org/iscc
- attendance at numerous university careers fairs alongside other bioscience learned societies
- Biochemistry: the career guide booklet for 16–18-year-olds, to inform students of the breadth of careers available after studying biochemistry, to help them make informed choices when choosing undergraduate degrees